

REMARKS

Claims 1-2, 4, and 6-19 are pending in the application. By this Amendment, claim 1 is amended. No new matter is added. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Examiner is thanked for the indication that claims 11-19 are allowed.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance for the reasons discussed herein; (2) do not raise any new issues requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter; (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal, if necessary. Entry is thus requested. It is noted that independent claim 1 has been amended merely to more clearly recite that the protruded part is configured to minimize deformation of the main frames caused by the tension on the shadow mask, and thus these amendments do not raise new issues.

Claims 1-2 and 6-9 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ito et al. (hereinafter "Ito"), U.S. Patent No. 5,751,098. The rejection is respectfully traversed.

As previously stated, Ito at least fails to disclose or suggest a pair of main frames and a pair of subframes attached to end portions of the subframes, as recited in amended independent claim 1. Rather, Ito, in Fig. 4a cited by the Examiner, discloses an integrated frame 2.

Independent claim 1 further recites that each subframe is symmetric in left and right directions with respect to a center of each subframe. The Examiner refers to this feature and then states that "[i]t is an inherent property of the design that the frames depicted are symmetrical and have the same structure on both sides meaning there is a pair of subframes and a pair of main frames." It appears that the Examiner misunderstands this limitation. The limitation states that "each" subframe is symmetric in left and right directions with respect to a center of each subframe.

Further, the Examiner states that "the inclusion of such separate pieces for the main frames and subframes is not shown to solve any problems or yield any unexpected results that are not within the scope of Ito's shadow mask frame." The Examiner further states that "the inclusion of such separate pieces for the main frames and subframes is considered to be an obvious matter of design choice." However, as previously stated, multipiece type shadow mask frames are very different from integrated type shadow mask frames, both in their manufacture and resulting structure, as well as the forces acting upon the resulting structure, as would be known to one of ordinary skill in the art. More particularly, the force distribution on a multipiece frame is very different from an integrally structured frame. The claimed protruded part is configured to minimize deformation of the main frames of the claimed multipiece frame caused by tension on the shadow mask. Ito, on the other hand, teaches away from a multipiece shadow mask frame as it is an object of Ito to improve the characteristics of an integrally structured frame. See column 4, lines 36-40 of Ito. Thus, there would have been no motivation

to modify Ito, which is directed to improving the characteristics of an integrally structured frame, to instead use a multipiece frame.

Further, the Examiner ignores the recitation that the protruded part minimizes deformation of the main frames caused by the tension on the shadow mask, arguing that this feature is an intended use. However, this phase is not intended use, but rather a functional limitation. Independent claim 1 has been amended merely for clarification purposes, and now recites that the protruded part is configured to minimize deformation of the main frames caused by the tension on the shadow mask. The Examiner goes on to state that "a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations." However, Ito does not satisfy the claimed structure limitations. As stated above, Ito discloses an integrated structure frame rather than a multipiece frame formed of separate main frames and subframes. As previously stated, an integrated structure frame such as Ito's is very different from a multipiece frame such as that of the claimed invention. Further, as previously stated, there would have been no motivation to modify Ito which is directed to improving characteristics of an integrated structured frame, to be a multipiece frame. Finally, the claimed protruded part minimizes deformation of the main frames caused by the tension on the shadow mask. That is, the subframes are configured to address deformation issues characteristic of a multipiece, rather than an integrated structure type, mask frame.

Accordingly, the rejection of independent claim 1 over Ito should be withdrawn. Dependent claims 2 and 6-9, are allowable at least for the reasons discussed above with respect to claim 1, from which they depend, as well as for their added features.

Claims 1, 4, and 10 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Arai et al. (hereinafter “Ari”), U.S. Patent No. 6,512,326. The rejection is respectfully traversed.

As previously stated, Ari at least fails to disclose or suggest a pair of main frames and a pair of subframes attached to end portions of the subframes, as recited in amended independent claim 1. Rather, Ari teaches adding embosses 15 to an integrated frame body 11. See, for example, Figure 8 of Ari. The embosses 15 reduce or prevent torsion of the integrated frame body 11, as discussed in column 9, lines 46-57 of Ari. As discussed above, multipiece type shadow mask frames are very different from integrated type shadow mask frames, both in their manufacture and resulting structure, as well as the forces acting upon the resulting structure. Further, the claimed protruded part addresses bending moment of the subframes and the resulting distortion of the mainframes connected thereto caused by the tension of the shadow mask, not torsion of the entire frame, an issue associated with integrated type shadow mask frames. Thus, there would have been no motivation to modify Ari, which is directed to improving the characteristics of an integrally structured frame, to instead use a multipiece frame.

Further, the Examiner ignores the recitation that the protruded part minimizes deformation of the main frames caused by the tension on the shadow mask, arguing that this feature is an intended use. However, as discussed above, this phase is not intended use, but

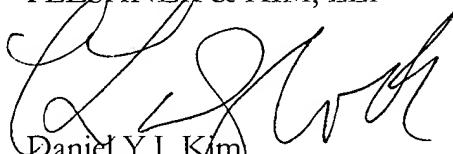
rather a functional limitation. As previously indicated, independent claim 1 has been amended merely for clarification purposes, and now recites that the protruded part is configured to minimize deformation of the main frames caused by the tension on the shadow mask. The Examiner goes on to state that "a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations." However, Arai does not satisfy the claimed structure limitations. Rather, Arai discloses an integrated structure frame rather than a multipiece frame formed of separate main frames and subframes. As previously stated, an integrated structure frame such as Arai's is very different from a multipiece frame such as that of the claimed invention. Further, as previously stated, there would have been no motivation to modify Arai which is directed to improving characteristics of an integrated structured frame, to be a multipiece frame. Finally, the claimed protruded part minimizes deformation of the main frames caused by the tension on the shadow mask. That is, the subframes are configured to address deformation issues characteristic of a multipiece, rather than an integrated structure type, mask frame. More particularly, the claimed protruded part addresses bending moment of the subframes and the resulting distortion of the mainframes connected thereto caused by the tension of the shadow mask, not torsion of the entire frame, an issue associated with integrated type shadow mask frames.

Accordingly, the rejection of independent claim 1 over Arai should be withdrawn. Dependent claims 4 and 10 are allowable at least for the reasons discussed above with respect to claim 1, from which they depend, as well as for their added features.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Carol L. Druzbick**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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